UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,593	04/19/2000	Ronald J. Gagnon	9-13528-102US	4092

20988 7590 02/16/2005

OGILVY RENAULT
1981 MCGILL COLLEGE AVENUE
SUITE 1600
MONTREAL, QC H3A2Y3
CANADA

EXAMINER	
PHILPOTT, JUSTIN M	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/552,593	GAGNON ET AL.	
	Examiner	Art Unit	
	Justin M Philpott	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed November 5, 2004 have been fully considered but they are not persuasive.

2. Applicant argues (page 15) that the limitations newly added to the amended claims are "unambiguously supported by the originally filed specification, as was discussed at length in Applicant's response dated May 20, 2004".

However, the above-mentioned discussion does not indicate a passage in applicant's specification which could enable the limitation of "first and second hyper-concatenated data streams [which] comprise respective portions of an *input signal* having a *variable user-selected concatenation*" (emphasis added). On the contrary, the passage of applicant's specification which applicant has relied upon for this teaching (per applicant's response of May 20, 2004) refers much more broadly to a traffic mixture which "can be selected by the end user to satisfy their requirements, and may be changed by the end user as those requirements change, without requiring re-configuration of the ... connection" (specification, pages 1-2). Further, while applicant's specification also discloses, "an arbitrary concatenation scheme ... can be defined by an end user" (specification, pages 13-14), applicant does not disclose a "*variable user-selected concatenation*" provided in "*an input signal*" of which respective portions are contained within "first and second hyper-concatenated data streams" as recited in applicant's amended claims.

Additionally, applicant clearly indicates that the limitation "variable" is distinguished from "arbitrary" by arguing that "a high bandwidth input signal can have an *arbitrary and variable* concatenation" (emphasis added) (Remarks, May 20, 2004, page 15). Thus, when applicant argues that reciting the limitation "arbitrary [selection]" in applicant's specification (as argued by applicant on page 14 of the May 20, 2004 response) permits applicant to include the limitation of "variable [selection]", such an argument is unpersuasive since applicant has admitted that "variable" and "arbitrary" are clearly two distinct limitations.

Thus, applicant's argument that applicant's originally filed application enables the limitation of "first and second hyper-concatenated data streams comprise respective portions of an input signal having a variable user-selected concatenation" is not persuasive.

3. Applicant's above-mentioned passages in the originally filed application *would*, however, enable the following limitation:

"wherein the first and second hyper-concatenated data streams comprise an arbitrary concatenation scheme defined by an end user".

4. Thus, applicant is respectfully requested to either: 1) amend the claims according to the above example, or using other phrasing that is enabled by applicant's originally filed application, or 2) cite passages in applicant's originally filed application which specifically disclose "an input signal having a variable user-selected concatenation" of which respective portions are comprised within the first and second hyper-concatenated data streams.

5. Additionally, applicant argues (pages 15-16) that neither Parruck nor Partridge disclose

applicant's newly added limitation as recited in the amended independent claims. However, this limitation is disclosed by the newly cited art of Fukunaga et al. as discussed in the following office action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. Specifically, claim 1 recites the limitation "wherein the first and second hyper-concatenated data streams comprise respective portions of an input signal having a variable user-selected concatenation"; claims 19 and 39 recite a limitation similar to that of claim 1; and claim 52 recites the limitation "the high bandwidth signal has a variable user-selected concatenation". Applicant has not provided citations pertaining to such a limitation being included in applicant's specification as originally filed. Upon review of the specification, Examiner was also unable to find support which would indicate that the user-selection is provided by the data streams comprising respective portions of an input signal. Accordingly, applicant's claims 1, 19 and 39 and their respective dependent claims 2-18, 20-38 and 40-51 are presently rejected in the

following action under 35 U.S.C. 112 for containing subject matter which was not described in the specification as originally filed.

Applicant may overcome this rejection by either: 1) amending the claims to instead recite a limitation such as "wherein the first and second hyper-concatenated data streams comprise an arbitrary concatenation scheme defined by an end user", or another limitation which is enabled by applicant's originally filed application, or 2) citing passages in applicant's originally filed application which specifically disclose "an input signal having a variable user-selected concatenation" of which respective portions are comprised within the first and second hyper-concatenated data streams.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1, 2, 4-9, 16-23, 25-30, 36-44 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,257,261 to Parruck et al. in view of U.S. Patent No. 6,118,795 to Fukunaga et al.

Regarding claims 1, 19-22, 39-41 and 52, Parruck teaches a channel processor (e.g., 10-2 in FIG. 1a) adapted for aligning a respective first hyper-concatenated data stream (e.g., STS-3#2, also see col. 3, lines 15-23 wherein the data streams may comprise the concatenation of any number of STSn data streams) with a second hyper-concatenated data stream (e.g., STS-3#1),

each data stream being conveyed within a respective parallel channel and having substantially equivalent bit and frame rates, the channel processor being connected to a respective channel for processing the respective first data stream, and comprising: a) a framer (e.g., via demultiplexer 40 in FIG. 2) adapted to detect incoming frames and generate a local strobe signal (e.g., comprising J1 byte) indicative of a timing of incoming frames of the respective first data stream (e.g., see col. 7, lines 1-21); b) a memory for buffering incoming bits of the respective first data stream (e.g., FIFOs 45 in FIG. 2, see also col. 6, lines 48-68); c) an interface adapted to receive a master strobe signal (e.g., comprising control signal and B3 parity value) from a selected adjacent channel processor (e.g., see col. 5, lines 9-21); and d) an output timer (e.g., see retiming block 18 in FIG. 1d) adapted to control a position of a read pointer for outgoing bits of the respective first data stream based on a selected one of the local and master strobe signals (e.g., see col. 5, line 66 – col. 6, line 47).

Further, regarding claims 20-22 and 39-41, Parruck teaches a control unit adapted to: a) designate a master channel processor (e.g., 10-1, see FIGS. 1a and 1b and col. 3, lines 46-49) to operate in a free-running mode in which the timing of outgoing bits of a respective master hyper-concatenated data stream is based on the respective local strobe signal (e.g., see col. 4, lines 1-68); and b) designate a slave channel processor (e.g., 10-2, see col. 3, lines 46-49) to operate in a slave mode in which the timing of outgoing bits if a respective slave hyper-concatenated data stream is synchronized to that of the master data stream based on a master strobe signal (e.g., comprising control signals, see col. 3, lines 42-68) originating from the master channel processor. Furthermore, Parruck teaches a set of two of more adjacent slave channel processors (e.g., 10-2, 10-3) to successively propagate a strobe signal (e.g., comprising control signals)

originating from the master channel processor to each one of the set of adjacent slave channel processors, whereby the timing of outgoing bits of each respective slave data stream is synchronized with that of the master data stream (e.g., see col. 3, lines 42-68).

Further, regarding claim 52, Parruck teaches inverse multiplexing the high bandwidth signal (e.g., STS-12c) across M (e.g., four) data streams (e.g., STS-3#n, wherein n equals 1 to 4, see FIG. 1a).

However, Parruck may not specifically disclose the data streams comprise respective portions of an input signal having a variable user-selected concatenation.

Fukunaga also teaches concatenated data stream processing and, specifically, teaches an input signal (e.g., at concatenation setting selector switch section 8, see FIG. 2) having a variable user-selected concatenation (e.g., see col. 13, lines 24-55; col. 15, lines 45-67). Further, Fukunaga teaches concatenated data streams (e.g., at data input, see FIG. 2) comprise respective portions of the input signal (e.g., determined by concatenation judgment detection 25, see col. 18, line 65 – col. 19, line 43). The teachings of Fukunaga provides increased capacity and transmission rate as well as reduced size and decreased power consumption (e.g., see col. 8, lines 20-24 and col. 10, line 19-28). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Fukunaga to that of Parruck in order to provide increased capacity and transmission rate as well as reduced size and decreased power consumption (e.g., see col. 8, lines 20-24 and col. 10, line 19-28).

Regarding claim 2, Parruck further teaches that the data streams comprise an arbitrary mix of concatenated and non-concatenated SONET signals by disclosing that the signals may

include, e.g., STS-3 and STS-3C (e.g., see col. 1, lines 37-43; FIG. 2 and col. 2, lines 62-63; and col. 9, lines 22-23 wherein Parruck discloses STS-3 is used generally to indicate the signal may be either a non-concatenated STS-3 signal or a concatenated STS-3C signal).

Regarding claims 4, 25 and 43, Parruck teaches the framer comprises: a) a detector circuit (e.g., frame counter 50) adapted to generate a detection signal (e.g., frame count) indicative of detection of a selected byte (e.g., H3 byte) of each incoming frame of the respective first data stream; and b) a strobe circuit (e.g., decision block 52) adapted to generate the local strobe signal (e.g., comprising J1 byte at multiplexer 55) with a predetermined timing relative to the detection signal (e.g., see col. 6, line 48 – col. 9, line 23).

Regarding claims 5, 26, and 44, Parruck teaches detecting J1 bytes of incoming SONET frames and generating a detection signal with a predetermined timing relative to the reception of the J1 byte (e.g., see col. 7, lines 1-21). However, Parruck may not specifically disclose detecting one or more of A1 and A2 bytes of incoming SONET frames and generating the detection signal with a predetermined timing relative to reception of the A1 byte. Parruck further teaches, however, that while a particular byte (i.e., J1 byte) is described as being used for accomplishing realignment, it will be appreciated that different bytes could be utilized (e.g., see col. 14, lines 51-61). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to detect the A1 or A2 bytes instead of J1 bytes in the system of Parruck as suggested by Parruck by teaching that different bytes could be utilized to accomplish the same realignment.

Regarding claims 6 and 27, Parruck teaches the memory is a FIFO buffer (e.g., FIFOs 45, see FIG. 2) having a read pointer (e.g., READ#1) indicative of an address of an outgoing bit of the respective first data stream.

Regarding claims 7 and 28, Parruck teaches a storage capacity of the memory (e.g., FIFOs 45) is selected on a basis of a maximum anticipated misalignment between the first and second data streams (e.g., see col. 7, lines 47-69, wherein the FIFO accommodates up to 12 bytes of delay).

Regarding claims 8, 9, 29 and 30, as discussed above regarding claims 7 and 28, Parruck teaches a storage capacity of the memory (e.g., FIFOs 45) is selected on a basis of a maximum anticipated misalignment between the first and second data streams (e.g., see col. 7, lines 47-69). Furthermore, Parruck teaches the storage capacity of the memory (e.g., twenty-nine bytes deep and ten bits wide) is selected to provide suitable processing. However, Parruck may not specifically disclose the memory is specifically equivalent to the number of bits received during an interval of up to 250 nsec or the size of up to one-half of a data frame. However, it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Appellant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, at the time of the invention it would have been obvious to one of ordinary

skill in the art to arrange the storage capacity of the memory to a size of the number of bits received during an interval of up to 250 nsec or the size of up to one-half of a data frame, since it is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value.

Regarding claims 16 and 36, Parruck teaches the interface comprises first and second input circuits (e.g., at rxB3 and rxSPE in FIG. 1b, coupled to demultiplexer 40 in FIG. 2) adapted to receive a master strobe signal from a respective one of the first and second adjacent channel processors.

Regarding claims 17 and 37, Parruck teaches a direction selector circuit (e.g., FIG. 2) is adapted to couple (e.g., via multiplexer 50) a selected one of the first and second input circuit to the output timer (e.g., retimed clock output), such that a master strobe signal propagated from a direction of the selected adjacent channel processor can be used by the output timer.

Regarding claims 18 and 38, Parruck teaches the interface further comprises first and second output circuits (e.g., at txB3 and txSPE in FIG. 1b) adapted to send a selected one of the local strobe signal and the master strobe signal to a respective one of the first and second adjacent channel processors.

Regarding claims 23 and 42, Parruck teaches the first and second hyper-concatenated data streams comprise concatenated SONET signals (e.g., see col. 1, lines 63-68).

11. Claims 3 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parruck in view of Fukunaga, further in view of U.S. Patent No. 6,160,819 to Partridge et al.

Regarding claims 3 and 24, Parruck in view of Fukunaga teaches the system as discussed above regarding claims 1 and 19, however, Parruck may not specifically disclose the parallel channels comprise a wavelength of a WDM optical communications system.

Partridge teaches a method for multiplexing bytes over parallel communication links. Specifically, Partridge discloses it is well known in the art that by transmitting information in parallel the overall capacity on a SONET system can be increased (e.g., see col. 2, lines 30-32). Furthermore, Partridge discloses it is well known in the art that WDM allows for high speed transmission at a lower cost and a higher degree of reliability (e.g., see col. 2, lines 32-37). The invention of Partridge teaches a technique for aggregating multiple high speed links for delivery to other communication points utilizing WDM, wherein lower costs and higher efficiencies are achieved (e.g., see col. 3, line 13 – col. 4, line 4). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Partridge to the system of Parruck in order to achieve lower costs and higher efficiencies.

Allowable Subject Matter

12. Claim 10-15, 31-35 and 45-51 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, first paragraph, set forth in this Office action and if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

claims 10, 11, 31 and 45 recite a processor/system/method as in respective claims 6, 27 and 39, and further comprise: a) phase error detection wherein a phase error is detected between

the local strobe signal and the master strobe signal, and b) pointer adjustment wherein the read pointer is adjusted based on the detected phase error; claims 12-15, 32-35 and 46-51 are dependent upon claims 10, 31 and 45, respectively, and include the above as well as further limitations.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 571.272.3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin M Philpott

ALPUS H. HSU
PRIMARY EXAMINER